5270

5270

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R.S.Patton, *Director*

State: Massachusetts

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } *Sheet No.* 2 5270

LOCALITY

Georges Bank

South of Cultivator Shoal

1932

CHIEF OF PARTY

W.E.Parker, L. O. Colbert

U. S. GOVERNMENT PRINTING OFFICE: 1931

Form 537
11—5812

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5270

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 2

REGISTER NO. 5270

State Massachusetts

General locality Georges Bank

Locality South of Cultivator Shoal

Scale 1:40,000 Date of survey June 23 to 28, 1932

Vessel Hydrographer and Oceanographer

Chief of Party W. E. Parker

Surveyed by W. E. Parker and L. O. Colbert

Protracted by F. Natella and E. B. Brown, Jr.

Soundings penciled by E.B.B.

Soundings in fathoms

Plane of reference MLW

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated May 16, 1932 192

Remarks:

GPO

DESCRIPTIVE REPORT

to accompany Hydrographic Sheet No. ____
(Field number 2)

GEORGES BANK - 1932

Project No.HT 107

Instructions

This work was done under joint instructions to the Commanding Officers of the ships HYDROGRAPHER, OCEANOGRAPHER, LYDONIA and GILBERT. The first paragraph of the instructions (of May 16, 1932) referring to the early instructions is quoted below:

"1. These instructions supplement those dated April 27, 1931, and May 17, 1930, covering a complete survey of Georges Bank. This project shall be continued jointly by the parties on the Ships HYDROGRAPHER, OCEANOGRAPHER, LYDONIA and GILBERT during the summer of 1932. The senior officer present shall have general charge of the movements of the vessels and of the planning and execution of the field work in accordance with the instructions."

Survey Methods

The positions were obtained by standard RAR methods using two floating hydrophone stations. Also, (in the case of A and B days) the two ships ran parallel lines; one ship (the OCEANOGRAPHER) taking a bearing and range finder distance on the other ship (the HYDROGRAPHER) while the latter ship obtained positions by RAR.

In some instances it was impossible to obtain distances from both hydrophone stations. In this case the positions were obtained by using dead reckoning and adjusting to any single arcs that could be obtained. When any bomb distance appeared to the plotter to be in error it was rejected. However, before rejecting a distance all available data were checked and the plotting was checked. In the majority of cases (of a rejected bomb distance) it was found that interference (static or otherwise) had obliterated the true bomb return. In many cases on this sheet the station was in sight and bearings were taken which proved valuable in cases where only one arc was to be obtained.

The following are cases where methods other than standard RAR methods were used:

Ship HYDROGRAPHER

A day

Pos. 1 to 7 were plotted by dead reckoning and adjusted to arcs from Station F. Pos. 1 was fixed by a bearing and estimated distance of buoy E. Pos. 7 was fixed by a bearing on the LYDONIA and a distance from station F.

B day

Pos. 31 to 38 were plotted by dead reckoning and adjusted to arcs from station F. Pos. 31 and 38 were fixed by intersecting (good) arcs.

C day

Pos. 9 to 13 were plotted by dead reckoning and adjusted to arcs from station L. Pos. 9 and 13 were fixed by intersecting arcs.

Pos. 15 to 19 were plotted by dead reckoning and adjusted to arcs from station L. Pos. 15 was fixed by intersecting arcs. Pos. 19 was fixed by a bearing on buoy E and distance from station L. There is a jump in course between pos. 15 and 16; this jump is probably due to the fact that the line was controlled by intersecting arcs up to pos. 15 and by bearings and arcs from one station after pos. 19. The bearings were used because bomb distances could not be obtained from Station H.

The line pos. 1 to pos. 21 is not in very good agreement with the boat sheet plotting. It is believed that this discrepancy is due to the fact that bearings were used in preference to distances from station H when plotting the boat sheet. However, the (GILBERT) arcs from station H were used when plotting the smooth sheet in preference to bearings. The arcs from station H that were used, were in agreement with each other; and, since this sheet is supposed to be plotted by RAR the plotter sees no excuse for using bearings in preference to RAR distances. Bearings were used from pos. 16 to pos. 21 only because no distance could be obtained from station H. The soundings on this line agree very well with other soundings in the vicinity.

Pos. 78 to 82 were plotted by dead reckoning and adjusted to arcs from station L.

D day

Pos. 36 to 41 were plotted by dead reckoning and adjusted to single arcs for final positions. Pos. 36 and 41 were fixed by intersecting arcs.

Pos. 42 to 46 were plotted by dead reckoning and adjusted to arcs from station L on pos. 43 and 45.

The fixes were very poor on positions 104 and 105. The plotter believes that a comparison of the soundings with sheet 3 will give a better determination of these positions. The intersection for 104 may be obtained by continuing the arcs from each station which are both shown.

E day

Pos. 53 to 59 were plotted by dead reckoning and adjusted to arcs from station L on positions 54 and 57. A better adjustment may possibly be made by a comparison with sheet 3.

F day

Pos. 26 to pos. 33 were plotted by dead reckoning and adjusted to arcs from station H.

A beter determination of pos. 39, 40 and 41 may be possible by a comparison with the adjoining sheet. The fixes are weak along here.

Pos. 47 to 52 were plotted by log distances (a factor determined between pos. 46 and 47) and arcs from station H on pos. 49 and pos. 52.

Ship OCEANOGRAPHER

C day

Adjusted between pos. 1 (bearing and range finder distance) and pos. 8 (intersection of bomb arcs).

Adjusted between pos. 12 and pos. 19 (bearing and bomb arc.)

Adjusted between pos. 27 (bomb arc and visual bearing) and position 41 (visual bearing and range finder distance), adjustment carried back to position 23, then adjusted between 19 and 23.

Adjusted between position 46 (bomb intersection) and position 59 (bomb intersection).

Adjusted between pos. 59 and pos. 62 (bomb intersection and visual bearing), adjustment carried forward to pos. 64. Then adjusted between 64 and 69.

Adjusted between pos. 69 (bomb intersection) and pos. 72 (bomb arc and range finder distance).

Adjusted between pos. 89 (bomb intersection) and pos. 93 (bomb intersection), adjustment carried back to pos. 82 from 87.

Adjusted between pos. 96 and pos. 98 (bomb arcs and visual bearing), adjustment carried forward to pos. 100.

D day

Adjusted between pos. 1 (visual bearing and distance) and pos. 12 (bomb intersection).

Adjusted between pos. 12 and pos. 21 (bomb intersection).

Adjusted between pos. 33 (bomb intersection) and pos. 36 (bomb intersection). Made addl. adjustment to improve line Bombpos. held final. (R)

Adjusted between pos. 36 and pos. 40 (visual bearing and range finder distance).

Adjusted between pos. 40 and pos. 55 (bomb intersection). (Re-examine the plotting to see if the positions should be shifted to the westward, account of soundings. C.) Line bet. pos. 45+51 shifted westerly. Line bet. pos. 63+68 shifted easterly. Resulting change greatly improves sdg. agreement. (Q)

Adjusted between pos. 55 and pos. 58 (visual bearing and range finder distance).

Adjusted between pos. 58 and pos. 75 (bomb arc and visual bearing).

Adjusted between pos. 75 and pos. 78 (bomb intersection).

Adjusted between 82 (bomb intersection) andpos. 85 (bomb intersection).

Adjusted between pos. 88 and pos. 92 (bomb intersection).

Adjusted between position 92 and position 108 (bomb intersection). (Re-examine plotting on account of crossings near pos. 94. Fix slim on pos. 101, 102 and 104.) C.) Line bet pos. 92+94 shifted westerly & raised slightly. Agreement is now satisfactory (Q)

Adjusted between pos. 108 and 112.

Adjusted between pos. 143 and 146.

Adjusted between pos. 165 and 169.

Plot from 170 to 173 by dead reckoning and adjust to arc from GILBERT on pos. 172 and from LYDONIA on pos. 173.

The visual bearings taken on C and D days did not prove to be reliable. The use of them for control and adjustment was avoided except in cases where they agreed with the other control if no other means to fix the line was available. Bearings were in particular used on D day in developing the area south of buoy L, positions 40 D to 75 D. Since from this region the two station ships were practically on range, the intersection of bomb arcs were of little or no value. While developing the area, the GILBERT was dismissed and the lines controlled by single bomb arcs and visual bearings to the LYDONIA. In adjusting the lines in smooth plotting, the bomb arcs were given the greater weight and only such bearings as best fitted with the other control were selected and used.

E day

Adjusted between pos. 7 and pos. 10, adjustment carried back to pos. 1 by using course 8 log factors as determined between pos. 7 and 17. Adjust between 13 and 17.

Adjusted between pos. 31 and pos. 33, adjustment carried back to pos. 21 and forward to pos. 39.

Adjusted between pos. 47 and pos. 50, adjustment carried back to pos. 43 and forward to pos. 56.

Adjusted between pos. 57 and pos. 60, making the loop 58 to 59 1/2 mile in diameter as required by this vessel in making a full right hand turn.

Positions 60 to 62 rejected because not only is adequate control lacking, it also falls off the sheet.

Line resumed at position 66; positions 63 to 65 do not fall on the sheet.

Back plot from 67, and adjust to arc from LYDONIA for pos. 66.

Adjusted between pos. 74 and pos. 77, carried forward to pos. 80.

Adjusted between pos. 81 and pos. 83, carried forward to pos. 84.

Adjusted between pos. 91 and pos. 105.

Adjusted between pos. 105 and 108.

Adjusted between pos. 135 and 139.

The adjustment of pos. 135 E to 139 E was carried forward to position 143 (inclusive). The remainder of the line, pos. 144 to 153(inclusive)was plotted and adjusted by soundings that were previously established on the sheet. It was noted that no additional information was revealed by these soundings (144 to 153). Since this latter part of the line was not well controlled it was removed from the smooth sheet.

STATISTICS FOR SHEET No. 2

Day	Date 1932	No. of positions	No. of soundings	No. of statute miles of sounding line
A (HYDROGRAPHER)	June 23	127	1451	145.4
A (OCEANOGRAPHER)	June 23	187	1070	145.4
B (HYDROGRAPHER)	June 24	78	803	73.6
B (OCEANOGRAPHER)	June 24	141	711	73.6
C (HYDROGRAPHER)	June 25	102	1088	121.0
C (OCEANOGRAPHER)	June 25	119	956	154.3
D (HYDROGRAPHER)	June 26	132	1198	159.5
D (OCEANOGRAPHER)	June 26	173	1202	169.0
E (HYDROGRAPHER)	June 27	94	1007	99.5
E (OCEANOGRAPHER)	June 27	153	1255	181.0
F (HYDROGRAPHER)	June 28	52	575	126.0

Submitted by

Edward B. Brown, Jr.

Dictated self from notes and approved, L. O. Colbert, Cmdg. Str. Oceanographer

SECTION OF FIELD RECORDS
Report on Hydrographic Sheet No. 5270.
South of Cultivator Shoal, Georges Bank, Mass.
Surveyed in 1932.
Instructions dated, May 16, 1932 (Hydrographer).

Chief of Party - W. E. Parker, L. O. Colbert.
Surveyed by - W. E. P., L. O. Colbert.
Protracted by - E. B. Brown, Jr., F. Natella.
Soundings plotted by - E. B. Brown, Jr.
Verified and inked by - G. Risegari.

1. The records conform to the requirements of the General Instructions.

2. The plan and character of development fulfill the requirements of the General Instructions.

3. The plan and extent of development satisfy the Specific Instructions.

4. The usual depth curves can be completely drawn.

5. Junction with H. 5269 (North) is satisfactory.
Junction with H. 5195 (East) is satisfactory.
Junction with H. 5170 (East(is satisfactory.
Junction with H. 5271 (South) is satisfactory.
Junction with H. 5275 (West) is satisfactory.

6. In the report, page 4, are listed discrepancies requiring additional adjustments which were made by the reviewer. Notes in blue pencil are appended in the right hand margin of said page which explain the changes.

In addition to the above, other discrepancies were found, particularly at the north and south junction of the sheet and were adjusted to make a harmonious agreement. In these adjustments, consideration was given to the control of the lines, adjacent accredited soundings, contours, including inspection of records and rechecking of the plotting.

The resulting changes greatly improved the agreement of the soundings and it is believed the soundings are in their most probable positions.

The changes involved soundings between positions:-

55E to 57 E) 77E to 81 E)	Lat. 41°08' Long. 68°26'
19C to 26C) 21D to 22D)	Lat. 41°08' Long. 68°17'
63D to 68D) 43D to 51D)	Lat. 41°10' Long. 68°21'
32A to 35A (Red)	Lat. 41°29' Long. 68°06'

7. The area covered by this survey appears to be, in general, satisfactorily

developed, except that there are a number of undeveloped shoal spots of less than 20 fathoms, though they appear to be of no importance. But there are several cases where further development would have been desirable which are located as follows:-

lat. 41°22'.5 long. 68°12'
" 41°09' " 68°14' - 11 fathom sounding and vicinity.
" 41°10' " 68°15' - 11 " "
" 41°14' " 68°13' - 11 and 12 fathom soundings.
" 41°12' " 68°20'

8. No comparison with work of older surveys was deemed necessary as the older work is not considered comparable with the present improved methods, apparatus, etc.

It is recommended that the work on H. 5270 supersede the work of older surveys, but to use bottom characteristics where available on the sheets or charts where such are deficient on H. 5270.

Reviewed by - G. Risegari - Sept. 1, 1933.

Inspection Note for H. 5270.

The charted 10 fathom sounding in lat. 41° - 17' long. 68° - 36' falls in depths of 35 fathoms even bottom. The authority for this sounding appears to be H. O. Chart 941 of 1882 (see tracing of H. 2917). It first appeared on the 1907 edition of C. & G. S. Chart No. 7. Since no information is available at the present time as to how the sounding was obtained and since no indication of shoaling appearson the recent survey, it is recommended that the 10 be disregarded in all future charting.

The charted 5¼ fathom shoal in lat. 41° - 11' long. 68° - 26' falls in depths of 22 to 28 fathoms on this survey. Its authority is H. 593 (survey of 1857) and is believed to be the same shoal partially shown on this sheet about 2 miles to the southward, but the main body of which is shown on H. 5271. The final disposition of this 5¼ fathom will therefore be considered in the review of H. 5271.

The other charted shoals that fall within the limits of this sheet appears to be misplacements of similar shoals found on the present survey, and they should, therefore, be disregarded, and the new survey supersede the old work.

Sheet Inspected by - A. L. Shalowitz.

L. O. Colbert,
Chief, Field Records Section.

Examined and approved:

Chief, Division of Charts.

Chief, Field Work Section.

Chief, Division of H. & T.

July 28, 1933.

Division of Charts:

The reductions are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 5270

Locality South of Cultivator Shoal, Georges Bank, Coast of Massachusetts.

Chief of Party: W. E. Parker and L. O. Colbert
Plane of reference is mean low water, reading
* 3.3 ft. on tide staff at Commonwealth Pier No. 5, Boston, Mass.
18.2 ft. below B. M. 7

*Allowance made for time and range of tide on the working grounds.

Time -1h 15m ; range 0.5 as large

Height of mean high water above plane of reference on working grounds is 4.7 ft.

Condition of records satisfactory except as noted below:

Paul P. Whitney
Chief, Division of Tides and Currents